

9. On a new Enchytræid Worm (*Henlea lefroyi*, sp. n.) from India destructive to the Eggs of a Locust (*Acridium* sp.). By FRANK E. BEDDARD, M.A., F.R.S., Prosector to the Society.

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Dr. S. F. Harmer, F.R.S., of King's College, Cambridge, was so good as to forward to me recently a tube of small white worms for identification and study. These had been sent to him from India by Mr. H. Maxwell Lefroy, Entomologist to the Government of India, who discovered that they attacked and destroyed the eggs of a locust belonging to the genus *Acridium* when the ground in which those eggs were deposited is moist.

Dr. Harmer directed my attention to the fact that they were Oligochæteous worms; they prove to be a species of the family Enchytræidæ, and were in a good state of preservation for microscopical examination. The family, as is well known, occurs in damp earth as well as in water; it is not so purely aquatic as are some of the families of the "Microdrili."

The species appears to be new, and presents a certain number of characters which in combination render its inclusion in any already defined genus difficult. I shall, however, describe its characters before proceeding to discuss its systematic position.

The species is small, 3-4 mm. in length and, as already mentioned, white. The *setæ* are curved and of the usual Enchytræid form; they are, however, rather few in number in each bundle, though present upon all the segments of the body, with the exception of the first and apparently the twelfth (in the mature worm with a clitellum). The lateral bundles possess *two* *setæ* apiece, and the ventral bundles *three*; very occasionally I observed three *setæ* in a dorsal bundle. This arrangement extends from end to end of the body.

The *number of segments* in a large specimen is 27.

I could detect no *dorsal pores*.

The *clitellum* and other external characters call for no remark.

The *alimentary canal* shows certain characters which assist in the placing of the species. Peptonephridia are present and of very small length, though I am unable to give any details concerning them. The œsophagus appears to pass without any break into the intestine; I can find no demarcation between these two sections of the gut. Behind the clitellum the gut is of course much wider than it is in front of that region of the body. Furthermore, I can discover no cæca or pouches of any description appended to the gut. It is a simple tube without outgrowths. The septal glands of this species extend back as far as the sixth segment, in which the last pair occur; in front of this pair and in segments iv. and v. are equally prominent pairs of septal glands.

The *dorsal blood-vessel* is anteclitellian in origin and does not seem to be connected at its point of origin with any dorsal diverticulum of the gut such as exists in *Buchholtzia*. It arises in the xith segment. I could see no "heart body."

The exact origin of the dorsal vessel is rather difficult to locate exactly in this very minute Enchytræid. I fix the xith segment as the point of emergence from the intestinal plexus, since the vessel is very much broader here than in the dorsal region of the blood-plexus posteriorly* and stands out more from the walls of the gut. The vessel is, in fact, in this segment quite twice the width that it is anteriorly to the point in question. Commonly, for example in *Henlea nasuta*, the dorsal vessel is much wider at its emergence from the intestinal plexus than it is anteriorly.

This is confirmed by an examination of a series of transverse sections, from which it was evident that the dorsal vessel stood away from the walls of the intestine in the anterior part of the clitellum; it was indistinguishable posteriorly.

Concerning the *reproductive organs*, it may be observed, in the first instance, that the position of the various ducts and pouches is perfectly normal. The external orifices of the atria are very conspicuous upon the ventral surface of the twelfth segment, in line or nearly so with the ventral setæ of that segment. These setæ are, however, absent, and there are no penial setæ of any kind. The testes and the ovaries occupy their usual segments, *i. e.* xi. and xii. Concerning the exact form of the sperm-duct funnel I am unable to give details; but I have identified them and satisfied myself that they are of the usual Enchytræid pattern.

The spermathecae offer characters of obvious systematic use. They open on the one hand into the œsophagus in the fifth segment, and on the other by a muscular duct on to the line dividing segments iv. and v. I could not find any diverticula. There are but a single pair of spermathecae.

In the above description I have only been able to dwell upon a certain number of facts which are of systematic importance in the group. Of importance in determining the genus are: (1) the presence of four bundles of curved setæ on all the segments of the body, save the first and the twelfth; (2) intraclitellian origin of dorsal vessel; (3) absence of any diverticula to œsophagus; (4) simplicity of spermathecae and their communication with œsophagus.

Of the thirteen genera allowed by Michaelsen †, 9, *viz.*, *Achaeta*, *Michaelsena*, *Mesenchytræus*, *Chirodrilus*, *Buchholtzia*, *Enchytræus*, *Stercutus*, *Marionina*, and *Lumbricillus*, are excluded by these characters. Though I did not find any dorsal pores, it is clear

* It must be borne in mind that Pierantoni ("Studi anatomici su *Michaelsena macrochata* Pierant.," *Mith. Zool. St. Neapel*, xvi. 1903, p. 409) traces a distinct dorsal vessel in the intestinal plexus posteriorly to the region where the former is said to commence. But this does not affect the point of emergence.

† Oligochæta, in 'Das Tierreich' (Berlin, 1900).

that the present species cannot be safely referred to the genus *Fridericia*, which is so distinctly characterised by the peculiar paired character of its setæ. There remains only *Henlea* and *Bryodrillus*, from which, however, the species described in the present paper differs in several points. With genera described more recently than those included in Michaelsen's comprehensive work just quoted, e. g. *Hydrenchytræus**, I cannot identify this semiparasitic Enchytræid from India.

It is true that four species, viz., *Marionina glandulosa*, *Enchytræus minimus*, *E. parvulus* †, and *E. turicensis*, possess, as does the species dealt with here, two setæ in each lateral, and three in each ventral, bundle; but I do not regard those European species as identical with the present Indian form.

In the meantime I place the species in the genus *Henlea*, where the characteristic glandular pouches of the gut are occasionally absent (e. g. *Henlea dicksoni*), in default of living material and a more exhaustive examination. I propose to name it after Mr. Lefroy, who first directed attention to the species.

10. On new and rare British Mites of the Family *Oribatide*.

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(Plates XIX. & XX. ‡)

Since the publication of Mr. A. D. Michael's Monograph on British Oribatidæ in 1888, only a single new species, so far as we are aware, has been described from these islands. This was a *Lohmannia* taken in Ireland by Prof. Carpenter and described by Berlese in 'Redia,' vol. ii. fasc. i. (1904, Aug. 18), as *L. insignis*. Curiously enough this mite was in our hands while the Italian arachnologist was describing it, and narrowly escaped another specific name.

No doubt the workers in this particular group have been few, but it is a striking testimony to the thoroughness of Mr. Michael's work that so long an interval should have elapsed without substantial addition to the British list of Oribatidæ, for the study of which his labours have so admirably paved the way.

For two years we have searched pretty thoroughly the neighbourhood of Cambridge, and especially of Grantchester, and have examined moss from many other localities, and we have hitherto met with 82 of the species described in the Monograph, and the seven forms, new, we believe, to science, of which the diagnoses are given below.

* Bretcher, Rev. Zool. Suisse, ix, p. 208.

† This worm is described by Friend (Irish Nat. xi. 1902, p. 110), though no sufficiently to permit of any certainty.

‡ For explanation of the Plates, see p. 569.